REMARKS

New claims 13 and 14 have been added. These new claims are supported by the disclosure found on page 9, second paragraph, of the specification of the present application.

Claims 1-5 and 7-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nomura et al. (U.S. Patent No. 5,174,111; hereinafter: "Nomura") in view of Leyrer et al. (U.S. Patent No. 5,643,542; hereinafter "Leyrer") and legal precedent.

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Nomura in view of Leyrer and legal precedent as applied to claim 1, and further in view of official notice.

Reconsideration and removal of these rejections are respectfully requested for the reasons explained below.

(I) Claims 1 and 11

(A) Feature (i)

Claims 1 and 11 have the following feature (i):

> A process for purifying exhaust gas from a gasoline engine of a fuel-direct-injection type,
> wherein the process uses an exhaust gas purifying catalyst that contains a noble metal and a fire-resistant inorganic oxide (alumina, titania, zirconia, or a composite oxide thereof) carrying the noble metal, and is capable of purifying first exhaust gas emitted under

operation conditions of ideal air-to-fuel ratio (high output and high load conditions),

wherein the process also uses the exhaust gas purifying catalyst to purify second exhaust gas that forms a more oxidizing atmosphere at an air-to-fuel ratio exceeding 15 (under low conditions, fuel saving), as compared with the first gas state, and

wherein the process purifies the second exhaust gas by controlling the second exhaust gas state such that the second exhaust gas state has a relatively low exhaust-gas temperature at the inlet of the catalyst.

Using the exhaust gas purifying catalyst to purify both the first exhaust gas and second exhaust gas is advantageous in simplifying the purification process under all operation conditions.

In other words, the gasoline engine of a fuel-direct-injection type, which allows the temperature of exhaust gas to be easily controlled to remain at low temperatures, can be used in a second exhaust gas state in which the air-to-fuel ratio is set above 15 for better fuel economy, enabling the temperature of the second exhaust gas to be controlled no greater than 500°C, preferably no greater than 350°C, and more preferably no greater than 300°C at the inlet of the catalyst.

That is, the exhaust gas purifying catalyst containing a noble metal can also be used to purify exhaust gas in the second exhaust gas state, in addition to purifying exhaust gas in the first

exhaust gas state in which the air-to-fuel ratio is set to an ideal ratio of 14.7.

(B) Distinctions over Cited References

(1) Nomura

(a) Fire-resistant inorganic oxide

The Office contends that Nomura discloses the fire-resistant inorganic oxide (alumina, titania, zirconia, or a composite oxide thereof) recited in current claims 1 and 11 of the present invention.

However, Nomura merely describes zeolite as a fire-resistant inorganic oxide (please see Abstract and claim 1 of the reference; no description can be found in Examples), and does not disclose anything about the fire-resistant inorganic oxides of the present invention, including alumina, titania, zirconia, and a composite oxide thereof.

(b) First exhaust gas state and second exhaust gas state

Further, the Office points out that the first exhaust gas state of the present invention corresponds to region B in Figure 13 of Nomura, and that the second exhaust gas state of the present invention corresponds to region A in Figure 13 of Nomura.

Further, the Office contends that the second exhaust gas state, which is more oxidizing and has a lower temperature at the inlet of the catalyst than the first exhaust gas state is disclosed in Figure 2 and column 8, lines 46-57, of Nomura.

However, contrary to the Office's contentions, Figure 2, Figure 13, and column 8, lines 46-57, of Nomura do not disclose or indicate anything about the temperature of exhaust gas at the inlet of the catalyst. As such, the Office's rejections lack merit.

Specifically, Nomura in Figures 2 and 13 merely describes a relationship between engine speed (NE) and engine load (Q/N). Further, in Figure 13 of Nomura representing a map of engine speed (NE) versus engine load (Q/N), region B and region A merely indicate an unsuitable region and a suitable region, respectively. That is, Figure 13 of Nomura does not disclose or even suggest the exhaust gas temperature at the inlet of the catalyst.

Further, region A and region B are described in relation to the control of residual hydrocarbon amount in the exhaust gas as shown in Figures 16 and 17, in which the injection timing is adjusted (varied) for air and fuel. This is different from the common adjustment of air-to-fuel ratio.

Further, Nomura in column 8, lines 46-57, merely describes exhaust gas purification under varying hydrocarbon conditions in the exhaust gas of the engine, and does not disclose or suggest anything about the exhaust gas temperature at the inlet of the catalyst.

(2) Leyrer

The Office notes that the features (1) through (3) of current independent claims 1 and 11 appear to be taught by Leyrer.

(1) The platinum metal group of the catalyst is in a range of 0.01 g/liter to 50 g/liter of the catalyst volume (please see claim 9 of Leyrer).

(2) The fire-resistant inorganic oxide is contained in a range of 50 g/liter to 300 g/liter of the catalyst volume (please see claim 9 of Leyrer).

(3) The noble metal source used for the catalyst is obtained from water-soluble compounds (please see column 5, lines 38-49, and column 7, line 6, of Leyrer).

However, Leyrer et al. does not disclose or suggest the feature (i) of the invention as noted above.

Thus, the combination of Nomura and Leyrer does not support a case of prima facie obviousness of claims 1 and 11 (and the claims

dependent thereon) under 35 U.S.C. § 103(a), and these claims satisfy the requirement of patentability.

(II) Claims 13 and 14

(A) Feature (ii)

Claims 13 and 14 have the following feature (ii):

> The exhaust gas purifying-use catalyst is obtained by impregnating the noble metal in the fire-resistant inorganic oxide.

(B) Distinctions over Cited References

(1) Nomura

The exhaust gas purifying-use catalyst of Nomura is made by combining zeolite and a noble metal, and it corresponds to the catalyst (Z) in the Comparative Example of the present invention (please see pages 24 and 25 of the specification as filed).

By comparing the catalyst of the present invention with the catalyst (Z), it is clear that the catalyst of the invention has superior properties. Thus, claims reciting the catalyst are not obvious.

(2) Leyrer

The engine as disclosed in Leyrer is not of a direct-injection type. Thus, the invention of Leyrer and the present invention relate to different technical fields.

The catalyst (Z) described in the Comparative Example of the present invention is an exhaust gas purifying-use catalyst for internal combustion engines, the same type as that used in Leyrer. However, the catalyst does not exhibit any effect in a direct-injection type gasoline engine as used in the present invention.

Thus, the combination of Nomura and Leyrer does not support a case of prima facie obviousness of claims 13 and 14 under 35 U.S.C. § 103(a), and these claims satisfy the requirement of patentability.

Removal of the 35 U.S.C. § 103(a) rejections is believed to be in order and is respectfully solicited.

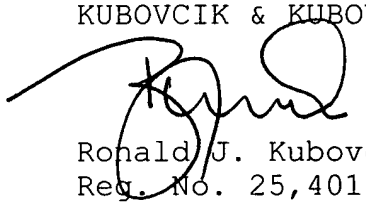
The foregoing is believed to be a complete and proper response to the Office Action dated February 23, 2005, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

KUBOVCIK & KUBOVCIK



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